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Mazdoor Kisan Shakti Sangathan

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Jawaharlal Nehru

“Step Out From the Old to the New”

IS 12090 (1987): Dimensions of rotary tables for direct rotary drilling equipment [MED 21: Diamond Core and Waterwell Drilling]

“ज्ञान से एक नये भारत का निर्माण”

Satyanaaranay Gangaram Pitroda

Invent a New India Using Knowledge



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“Knowledge is such a treasure which cannot be stolen”



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DIMENSIONS OF ROTARY TABLES FOR DIRECT ROTARY DRILLING EQUIPMENT

1. Scope — Specifies the dimensions of those items of the rotary tables for direct rotary drilling equipment which enable the transmission of the rotational motion to the drilling stem.

1.1 The rotary table is designed for suspending various strings used during rig operations, such as drill stem, casing and tubing strings.

2. Nomenclature — For nomenclature of rotary table and its items, reference shall be made to figures as follows.

2.1 Rotary Table — Fig. 1 and 2.

2.2 Master Bushing — Fig. 2 and 3.

2.3 Kelly Bushing — Fig. 1 and 3.

2.4 Rotary Table Pinion-Shaft Extension — Fig. 4.

2.5 Rotary Table Sprocket — Fig. 5.

3. Dimensions

3.1 Nominal size of rotary table shall either be 444 or 521 mm.

3.2 Dimensions for rotary tables shall be as given in Table 1 and Fig. 1 and 2A.

3.3 The distance Y (shown in Fig. 1) between the centre of the rotary table and the centre of the first row of sprocket teeth shall be 1 353 mm for tables allowing a 508 mm bit, or larger, to pass and shall be 1 118 mm for tables not allowing a 508 mm bit to pass.

3.3.1 If specifically agreed to between the manufacturer and the purchaser, the distance Y of 1 353 mm may be used in tables not allowing a 508 mm bit to pass.

3.4 The square drive master bushings shall conform to the dimensions specified in Table 2 and shown in Fig. 2B. Dimensions for four-pin drive master bushing and kelly bushing shall conform to the dimensions specified in Table 3 and given in Fig. 3.

3.5 Pipe slips operating in the master bushing shall have a taper of 1 : 3 ($9^{\circ}27'45'' \pm 2'30''$).

3.6 Kelly bushings may be manufactured in either of the following two types:

a) Square drive kelly bushing complying with Fig. 1 and 2; or

b) Pin drive kelly bushing complying with Fig. 3 and Table 3.

3.7 The dimensions of rotary table pinion-shaft extensions shall conform to the dimensions specified in Table 4 and given in Fig. 4.

3.8 The dimensions of rotary table sprocket shall conform to the dimensions specified in Table 5 and given in Fig. 5.

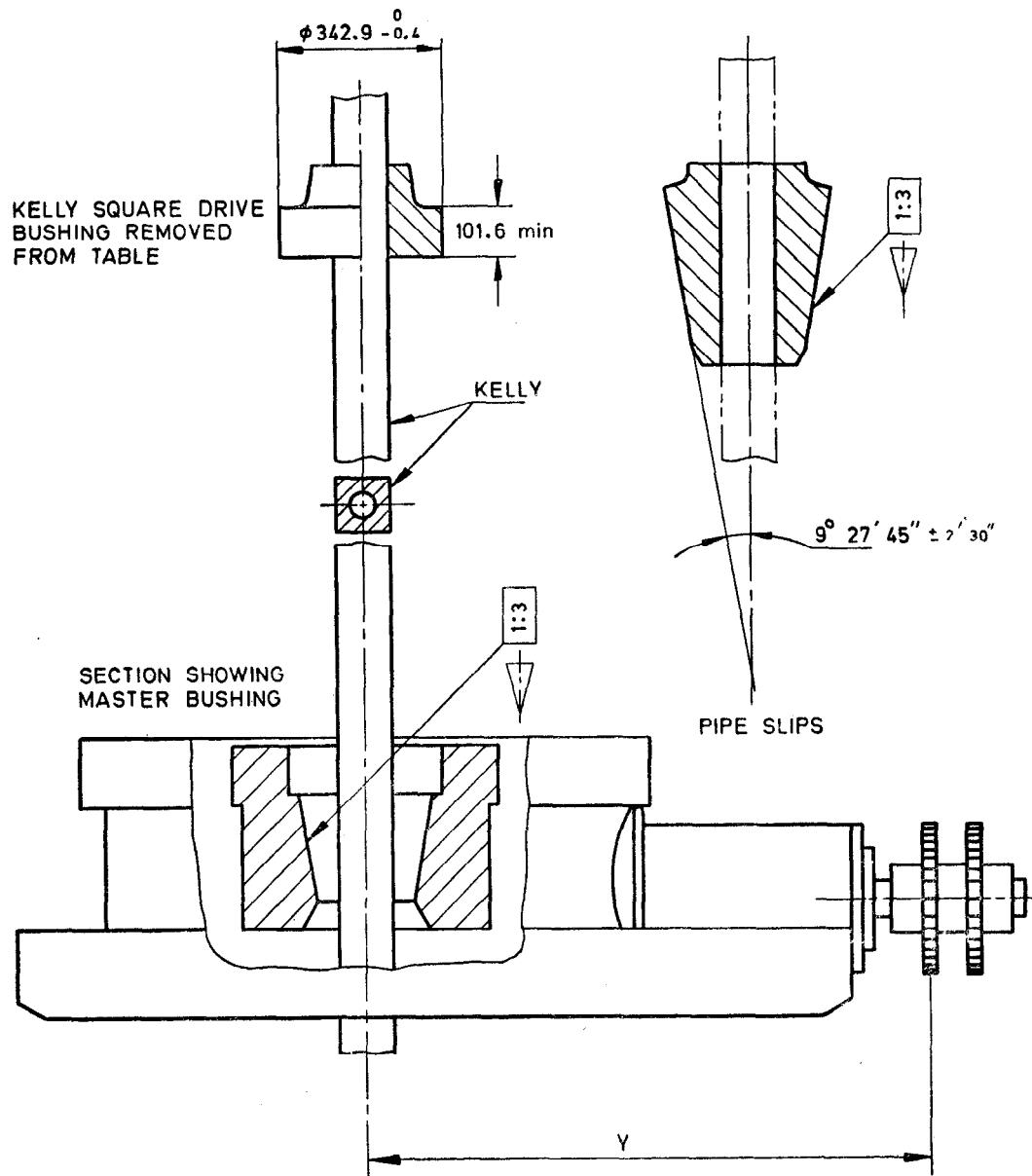
Note 1 — The maximum hub diameter allowed for chain clearance is 273·05 mm.

Note 2 — The counterbore diameter of 285·75 mm applies to sprockets with a minimum number of teeth. This diameter shall be increased for sprockets having a greater number of teeth, to as much as the limit of difference A minus B.

Note 3 — Eight holes are drilled with a 26·2 mm bit and are equally spaced on the bolt circle of diameter 228·6 mm.

3.8.1 The sprockets, single strand and double strand shall have one common hub with identical bolt circle, number of bolts and size of bolts.

3.8.2 If a universal joint is used instead of a sprocket, the dimensions of the pinion shaft extension shall dictate the size of the companion flange.



All dimensions in millimetres.

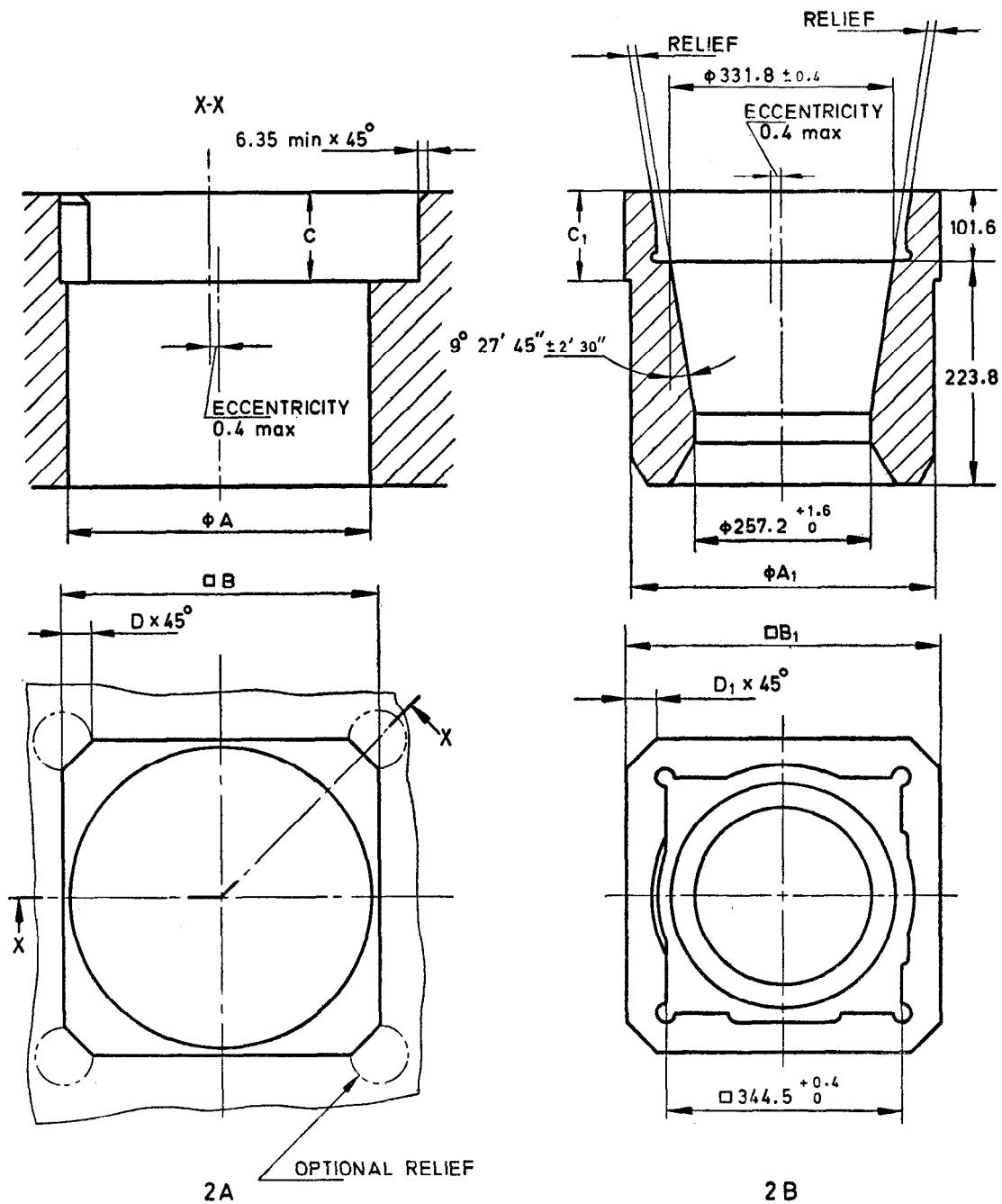
FIG. 1 ROTARY TABLE WITH SQUARE KELLY BUSHINGS

TABLE 1 DIMENSIONS OF ROTARY TABLE OPENING

(Clause 3.2 and Fig. 1 and 2A)

All dimensions in millimetres.

Nominal Size of Rotary Table	A +0.381 0	B +0.762 0	C	D Max
444	444.5	462.0	133.4	44.4
521	520.7	538.2	133.4	44.4



All dimensions in millimetres.

FIG. 2 ROTARY TABLE OPENING AND SQUARE DRIVE BUSHING

TABLE 2 DIMENSIONS OF SQUARE DRIVE MASTER BUSHING

(Clause 3.4 and Fig. 2B)

All dimensions in millimetres.

Nominal Size of Rotary Table	A_1 0 -0.381	B_1 0 -0.762	C_1	D_1 $+6.350$ 0	Concentricity $A_1 - B_1$
444	442.9	460.4	133.4	44.4	0.794
521	519.1	536.6	133.4	44.4	0.794

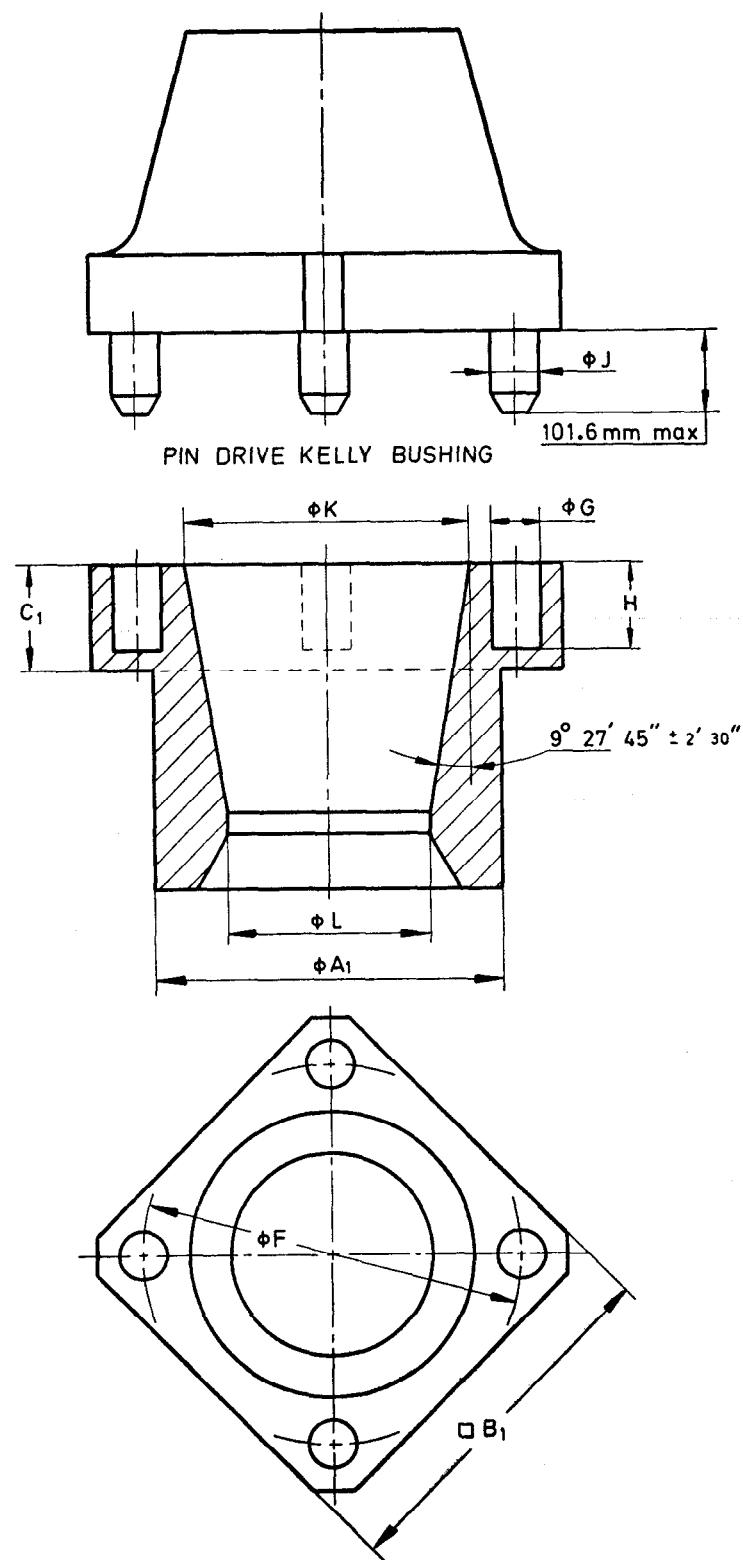


FIG. 3 FOUR PIN DRIVE MASTER BUSHING AND KELLY BUSHING

TABLE 3 DIMENSIONS OF FOUR-PIN DRIVE AND KELLY BUSHING MASTER BUSHING

(Clause 3.4 and Fig. 3)

All dimensions in millimetres.

Nominal Size of Rotary Table	F ± 1.6	G ± 0.13	H	J ± 0.13	K $+1.6$ 0	L $+1.6$ 0
444	482.2	65.15	108	62.79	365.1	257.2
521	584.2	65.15	108	62.79	365.1	257.2

Note — See Tables 1 and 2 for rotary table opening dimensions and master bushing dimensions (A_1 , B_1 and C_1)

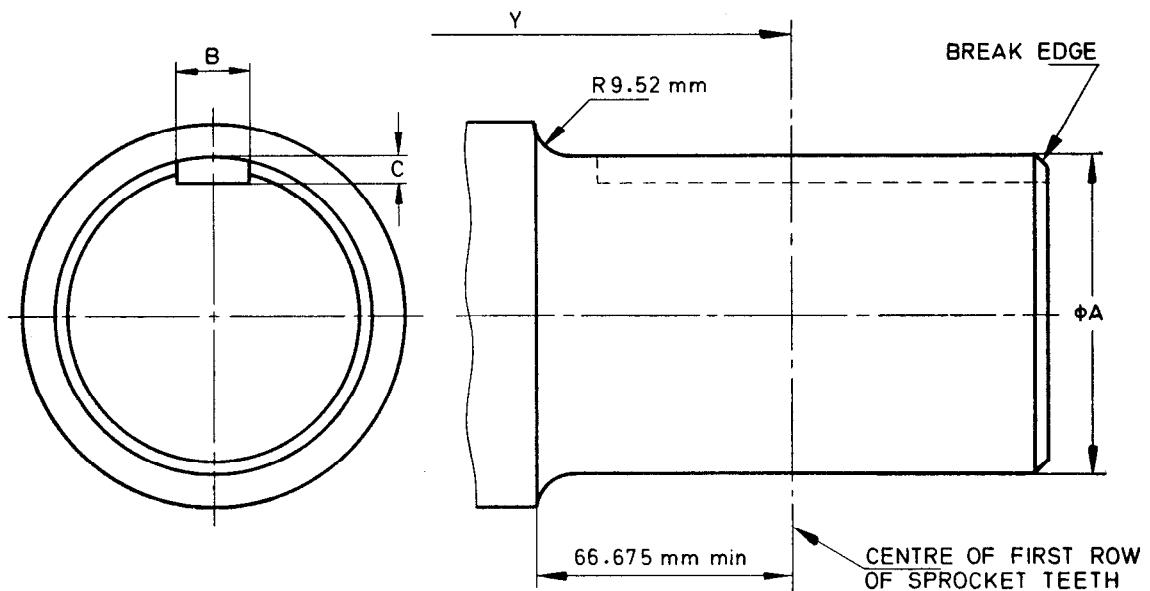


FIG. 4 ROTARY TABLE PINION-SHAFT EXTENSIONS

TABLE 4 DIMENSIONS OF ROTARY TABLE PINION-SHAFT EXTENSIONS

(Clause 3.7 and Fig. 4)

All dimensions in millimetres.

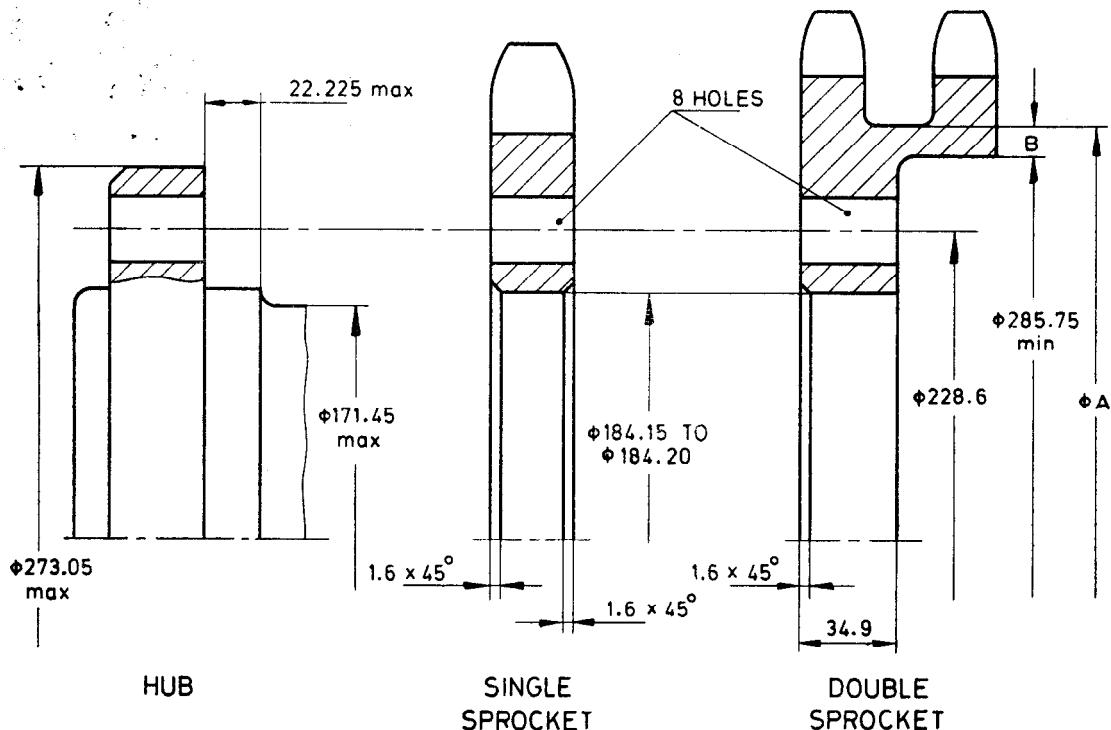
Nominal Size of Rotary Table	A 0 -0.025	B 0 -0.025	C
444	82.55	19.05	6.35
521	100.02	25.40	9.52

4. Marking — Rotary table, master bushing and kelly bushing shall be marked with the following:

- a) The manufacturer's name and/or his recognized trade-mark; and
- b) Nominal size.

4.1 The rotary table pinion-shaft extension shall be marked by stamping with the size specified in Table 4.

4.1.1 The stamp shall be applied on the shaft end, in characters 6.35 mm high.



All dimensions in millimetres.

FIG. 5 DEMOUNTABLE ROTARY TABLE SPROCKET

TABLE 5 DIMENSIONS OF DEMOUNTABLE ROTARY TABLE SPROCKET

(Clause 3.8 and Fig. 5)

All dimensions in millimetres.

Sprocket Type	Teeth of Sprocket	A Max	B Min
1½ P single	23	—	—
2 P single	21	—	—
2½ P single	17	—	—
3 P single	14	—	—
3½ P single	14	—	—
1½ P double	25	306·4	10·3
2 P double	22	301·6	7·9
2½ P double	19	315·9	15·1

EXPLANATORY NOTE

In the preparation of this standard, considerable assistance has been derived from ISO 5229-1982 'Rotary drilling equipment — Rotary tables', issued by the International Organization for Standardization (ISO).